

AMENDMENTS TO THE SPECIFICATION

Please amend paragraph [0011] on page 6 as follows:

However, in the above conventional technique, there are the following problems. The conventional DTCP method is intended for transmitting an MPEG-TS signal using isochronous packet in real time in the IEEE 1394. However, it has a big problem that it cannot transmit the MPEG-TS signal through the networks such as the Ethernet (registered trademark) (IEEE 802.3), the wireless LAN (IEEE 802.11), and other networks which are available for transmission of IP packets, using the Internet Protocol (IP) which is the standard protocol of the Internet.

Please amend paragraph [0019] on page 9 as follows:

More specifically, according to a first invention, a packet transmitter and receiver unit ~~which~~ includes: a data input unit which inputs AV data and non-AV data respectively; an encrypted data generation unit which inputs outputs of the data input unit and “executes encryption or addition of an encryption information header” according to prescribed receiving conditions; and a packet header addition unit. The encrypted data generation unit includes an authentication unit, an encryption unit and an encrypted information header addition unit, and includes a control unit which controls the encryption unit to or not to execute encryption according to the prescribed transmitting and receiving conditions and controls the encryption information header addition unit to or not to perform addition of encryption information headers. In this way, an encryption mode is determined according to transmitting conditions by a predetermined rule provided from outside an AV stream such as an MPEG-TS signal, and further addition of encryption information header is determined. This makes it possible to maintain confidentiality of an AV stream, securing compatibility of signals between packet transmitter and receiver apparatuses and using HTTP and RTP.

Please amend paragraph [0022] on page 10 as follows:

A fourth invention inputs the AV data and non-AV data in the first invention into data buffers respectively, and outputs ~~output~~ them to the packet header addition unit by performing output priority control of these two buffers. For example, it preferentially outputs the AV data from the data buffer while controlling the buffer of the non-AV data in order not to overflow. In

this way, it becomes possible to preferentially transmit data with high importance among the AV data and the non-AV data.

Please amend paragraph [0038] on page 15 as follows:

In addition, with the above invention, even in the case where AV contents are transmitted using hardware, software processing of general data packets are conventionally performed using a CPU. Hence, the addition of software makes it possible to transmit management information and control information as general data. Since the data amount ~~ament~~ of the information is very small compared to the AV data which is priority data, they can be realized using an inexpensive microprocessor such as a microcomputer, and thus a low-cost system can be realized. Note that no costly CPU and large scale memory are required even for the protocol processing of priority packets which require a high load and a high transmission rate. In view of this, it is possible to provide a low-cost and high-function apparatus.

Please amend paragraph [0040] on page 16 as follows:

In addition, as to transmission of AV contents using a network, data bugging on the network is prevented and highly-secure data transmission is realized. In this way, even in the case where a public network ~~net~~ such as the Internet is used as a transmission path, it is possible to prevent bugging and leakage of priority data (AV data contents) to be transmitted in real time. In addition, it becomes possible to sell and charge AV data to be transmitted using the Internet or the like, and to sell and distribute highly secure contents of B-B and B-C.

Please amend paragraph [0054] on page 23 as follows:

Here, an MPEG-TS is used in the example, but input signals are not limited to this. As for an application range of input contents which can be used in the present invention, the following ~~followings~~ are applicable: an MPEG-TS stream (ISO/IEC 13818) in MPEG- 1/2/4 and the like; a stream defined by the DV (IEC 61834 and IEC 61883), the Society of Motion Picture & Television Engineers (SMPTE) 314M (DV-based), the SMPTE 259M (SDI), the SMPTE 305M (SDTI), the SMPTE 292M (HD-SDI), the ISO/IEC H . 264 and the like; and further general AV contents.

Please amend paragraph [0066] on page 25 as follows:

Note that, in this home, for example, a TV, which receives contents subjected to digital copyright protection and distributes IP packets of the contents to apparatuses (an air conditioner, a DVD, a PC and a ~~refrigerator~~ refrigerator) in the home, corresponds to the packet transmitter apparatus 101 of the present invention, and the respective apparatuses correspond to the packet receiver apparatus 103.

Please amend paragraph [0068] on page 25 as follows:

In the switching hub, even in the case where data are inputted to, for example, eight input ports at the same time, on condition that the output ports of the respective data are different, the respective data are subjected to switching without conflicting in the buffer inside the hub ~~hub~~ and are outputted ~~outputted~~ through the output ports. Therefore, no packets of the input data are lost, and all the data are outputted to the output ports.

Please amend paragraph [0076] on page 28 as follows:

The transmitting condition setting management unit 404 obtains AV data information including input terminal information indicating a terminal to which AV data (transmission data) is inputted, data format information indicating ~~indicating~~ the data format of the AV data and the attribute information indicating the attribute of the AV data, and controls generation of headers and payload data (performs settings of parameters) in the packet generation unit 403 and the frame generation unit 409. To be more specific, such AV data information is: types of data to be transmitted, information concerning ~~concerning~~ transmission destination addresses and port numbers, information of paths to be used in the transmission (routing information), the bandwidths of the data to be transmitted, the setting information of the transmitting conditions such as transmission priority of the data to be transmitted, management ~~management~~ control data of the apparatus in a transmission unit (local) and a receiving unit (remote), and the data for providing the transmitter side with a feedback of a receiving status.

Please amend paragraph [0077] on page 28 as follows:

In an example case where a signal to be handled is an MPEG-TS signal of AV data, it should be noted that the input terminal information indicating terminals, in the packet transmitter

and receiver unit 401, to which AV data (transmission data) are inputted include: (1) an input terminal of digital broadcasting (in the case of Japan, there is an RF input terminal which is compliant with ~~ground~~ ~~ground~~ digital broadcasting, BS digital broadcasting, and 110 CS digital broadcasting with a wide bandwidth), (2) an IEEE 1394 D-I/F, (3) a USB-I/F, (4) an IP-I/F (differentiation of an Ethernet (registered trademark) network, a wireless LAN or the like), (5) ~~analog~~ ~~analog~~ video and audio input (in this case, analog video and audio inputted inside the packet transmitter and receiver unit 401 is converted into an MPEG-TS signal). As for digital broadcasting, note that there is provided an explanation in the Journal of the Institute of Image Information and Television Engineers, Vol . 58, No . 5, pp . 604 to 654.

Please amend paragraph [0084] on page 31 as follows:

The frame generation unit 409 ~~further~~ ~~further~~ adds MAC headers to the IP packets from the packet generation unit 403, according to the transmission parameters transmitted from the transmitting condition setting management unit 404. By doing this, it converts them into Ethernet (registered trademark) frames and outputs them to a network as frames to be transmitted.

Please amend paragraph [0088] on page 32 as follows:

At the receiver side, ~~signals~~ ~~signals~~ to be inputted via a network are filtered based on the MAC headers by the frame receiver unit 410, and obtained ~~signals~~ ~~signals~~ are inputted to the packet receiver unit 405 as IP packets. They are filtered based on the packet headers by the packet receiver unit 405 through identification, and inputted in the encrypted data decryption unit 407. They are subjected to removal of the encryption information headers and decryption of the encryption and the decrypted MPEG-TS signal is outputted by the encrypted data decryption unit 407.

Please amend paragraph [0115] on page 42 as follows:

As a transmission method of EMI and seed information from the transmission side to the receiver side, for example, note that it is possible to generate and transmit other packets exclusive for them. By doing so, it becomes more ~~become further~~ difficult to perform restoration of an encryption key, and perform bugging and leakage of the contents. In addition, in the case

where AV data to be transmitted in real time via a public net such as the Internet are subjected to encryption parameter change or transmitted in different packets, it is possible to make it difficult to ~~perform~~ perform-bugging and leakage of the AV data. As for management control data, similar to the example of FIG. 10, TCP packets are generated through software processing and the TCP packets are made into IP packets.

Please amend paragraph [0152] on page 58 as follows:

Note that as related information of AV data to be inputted in the transmitting condition setting management unit 2403 (in the case of broadcast or playback of stored contents), the ~~following followings~~ are conceivable as an example.

(Case 1) The case where the AV data is contents received by a broadcasting channel which broadcasts copy-free contents. As examples of broadcasting channels like this, for example, there are VHF and UHF analog broadcasting channels or BS analog broadcasting channels.

(Case 2) The case where the AV data is contents received by a broadcasting channel which broadcasts contents other than copy-free contents even in a predetermined period. As examples of broadcasting channels like this, for example, there are toll channels of BS digital broadcasting or toll channels of CATV broadcasting. The copy control information of broadcasting channels which broadcast contents other than copy-free contents even in this predetermined period is characteristic in that Copy Never, Copy One Generation and Copy Free with an EPN flag are changed from moment to moment depending on broadcast contents.

Please amend paragraph [0170] on page 63 as follows:

As shown in FIG. 28, AKE setting information is inputted to the AKE unit 2405. The ~~following followings~~ are inputted to the packet generation unit 2406: information related to this AKE setting information (for example, copy protection information and encryption key update information), types of data to be transmitted, information of a transmission destination address and a port number, information of a path to be used in transmission (routing information), the bandwidth of the data to be transmitted, setting information of transmission conditions such as transmission priority of the data to be transmitted and the like, management control data of the apparatuses in the transmitter unit (local) and the receiver unit (remote), and the data for

providing the transmitter side with a feedback of a receiving status. The information and data are subjected to TCP/IP processing performed in the packet generation unit 2406, and the packets are inputted into the first queue.

Please amend paragraph [0175] on page 65 as follows:

In addition, AKE setting information is inputted to the AKE unit 2405 of FIG. 28. The ~~following followings~~ are inputted to the packet generation unit 2406: information related to this AKE setting information (for example, copy protection information and encryption key update information), types of data to be transmitted, information of a transmission destination address and a port number, information of a path to be used in transmission (routing information), the bandwidth of the data to be transmitted, setting information of transmission conditions such as transmission priority of the data to be transmitted and the like, management control data of the apparatuses in the transmitter unit (local) and the receiver unit (remote), and the data for providing the transmitter side with a feedback of a receiving status. The data is subjected to TCP/IP processing by local software processing where a processor is used, and the packets are inputted into a general data queue.

Please amend paragraph [0211] on page 76 as follows:

In addition, with this embodiment, there is provided an effect of making it possible to access an MPEG I-picture, P-picture or B-picture efficiently, even in the case of implementation by a transmitter and receiver apparatus which does not implement AKE or encryption processing of AV contents.